## APPENDIX B

### Claims as Pending After Entry of the Present Amendment

1. A chimeric peptide comprising a μ opioid receptor binding moiety at its N-terminus and an agonist Substance P receptor binding moiety at its C-terminus, wherein said peptide induces analgesia.

2. The peptide of claim 1, wherein said peptide induces analgesia when administered in a mammal.

28. The peptide of claim 1 wherein said opioid receptor binding moiety is a μ receptor agonist.

29. The peptide of claim 28 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is a free amine.

30. The peptide of claim 29 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is Tyr.

31. The peptide of claim 30 wherein said opioid receptor binding moiety is a peptide having any one of SEQ ID Nos: 1-11, or an N-terminal fragment or N-terminal derivative thereof.

32. The peptide of claim 30 wherein said opioid receptor binding moiety is endomorphin 1, endomorphin 2, an N-terminal fragment, or an N-terminal derivative thereof.

33. The peptide of claim 32 wherein said opioid receptor binding moiety is a peptide having SEQ ID Nos: 2 or 3, or an N-terminal fragment or N-terminal derivative thereof.

45. The peptide of claim 1, wherein said agonist Substance P receptor binding moiety comprises Substance P, a C-terminal Substance P fragment, or a C-terminal Substance P derivative.

46. The peptide of claim 1, wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is protected.

47. The peptide of claim 46 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is amidated.

48. The peptide of claim 47 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Met-$NH_2$.

49. The peptide of claim 48 wherein said Substance P receptor binding moiety is a peptide having any one of SEQ ID Nos: 21, 36 and 38-41, or a C-terminal fragment or C-terminal derivative thereof.

50. The peptide of claim 46 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is esterified.

51. The peptide of claim 50 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is a methyl ester.

52. The peptide of claim 51 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-OMe, Lys-COOMe or Arg-COOMe.

53. The peptide of claim 52 wherein said Substance P receptor binding moiety is is a peptide having any one of SEQ ID Nos: 25-27, or a C-terminal fragment or C-terminal derivative thereof.

54. The peptide of claim 50 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is an ethyl ester.

55. The peptide of claim 54 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-COOEt, Lys-COOEt or Arg-COOEt.

56. The peptide of claim 55 wherein said Substance P receptor binding moiety is is a peptide having any one of SEQ ID Nos: 28-30, or a C-terminal fragment or C-terminal derivative thereof.

57. The peptide of claim 1 wherein the opioid receptor binding moiety is endomorphin 1, endomorphin 2, or an N-terminal fragment or N-terminal derivative thereof; and the Substance P receptor binding moiety is Substance P, or a C-terminal fragment or C-terminal derivative thereof.

58. The chimeric peptide of claim 1 wherein the peptide has SEQ ID No: 42.

59. The chimeric peptide of claim 1 wherein the peptide has SEQ ID No: 43.

61. The peptide of claim 1 wherein said peptide comprises at least one D-amino acid.

62. A pharmaceutical composition comprising the peptide of claim 1 and a pharmaceutically acceptable diluent.

63. The pharmaceutical composition of claim 62, further comprising an adjuvant.

64. The pharmaceutical composition of claim 62, wherein said peptide induces analgesia when administered to a mammal.

69. The pharmaceutical composition of claim 62, wherein said opioid receptor binding moiety is a μ receptor agonist.

70. The pharmaceutical composition of claim 69 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is a free amine.

71. The pharmaceutical composition of claim 70 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is Tyr.

72. The pharmaceutical composition of claim 71 wherein said opioid receptor binding moiety is a peptide having any one of SEQ ID Nos: 1-11, or an N-terminal fragment or N-terminal derivative thereof.

73. The pharmaceutical composition of claim 71 wherein said opioid receptor binding moiety is endomorphin 1, endomorphin 2, an N-terminal fragment, or an N-terminal derivative thereof.

74. The pharmaceutical composition of claim 73 wherein said opioid receptor binding moiety is a peptide having SEQ ID No: 2 or 3, or an N-terminal fragment or N-terminal derivative thereof.

86. The pharmaceutical composition of claim 62, wherein said agonist Substance P receptor binding moiety comprises Substance P, a C-terminal Substance P fragment, or a C-terminal Substance P derivative.

87. The pharmaceutical composition of claim 62, wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is protected.

88. The pharmaceutical composition of claim 87 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is amidated.

89. The pharmaceutical composition of claim 88 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Met-$NH_2$.

90. The pharmaceutical composition of claim 89 wherein said Substance P receptor binding moiety is a peptide having any one of SEQ ID Nos: 21, 36 and 38-41, or a C-terminal fragment or C-terminal derivative thereof.

91. The pharmaceutical composition of claim 87 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is esterified.

92. The pharmaceutical composition of claim 91 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is a methyl ester.

93. The pharmaceutical composition of claim 92 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-OMe, Lys-COOMe or Arg-COOMe.

94. The pharmaceutical composition of claim 93 wherein said Substance P receptor binding moiety is a peptide having any one of SEQ ID Nos: 25-27, or a C-terminal fragment or C-terminal derivative thereof.

95. The pharmaceutical composition of claim 91 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is an ethyl ester.

96. The pharmaceutical composition of claim 95 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-COOEt, Lys-COOEt or Arg-COOEt.

97. The pharmaceutical composition of claim 96 wherein said Substance P receptor binding moiety is a peptide having any one of SEQ ID Nos: 28-30, or a C-terminal fragment or C-terminal derivative thereof.

98. The pharmaceutical composition of claim 62 wherein the opioid receptor binding moiety is endomorphin 1, endomorphin 2, or an N-terminal fragment or N-terminal derivative thereof; and the Substance P receptor binding moiety is Substance P, or a C-terminal fragment or C-terminal derivative thereof.

99. The pharmaceutical composition of claim 62 wherein the peptide has SEQ ID No: 42.

100. The pharmaceutical composition of claim 62 wherein the peptide has SEQ ID No: 43.

102. The pharmaceutical composition of claim 62 wherein said peptide comprises at least one D-amino acid.

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BHJ/NML

The Patent and Trademark Office stamping sets forth filing and receipt date of an Amendment and Response under 37 C.F.R. § 1.111 and Request for Refund in the Patent application identified as follows:

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| Applicant: | Carr, *et al.* | Examiner: | Landsman, R.S. |
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| Title: | NOVEL CHIMERIC ANALGESIC PEPTIDES | | |


1) Transmittal (1 pg.);
2) Amendment and Response under 37 C.F.R. § 1.111 (38 pp.);
3) Copy of Lipkowski *et al.*, "Neuropeptides: Peptide and Nonpeptide Analogs" in *Peptides: Synthesis, Structures and Applications*, B, Gutte, ed., Academic Press, 1995, pp. 287-320 (34 pp.);
4) Copy of Lei *et al.*, *Eur. J. Pharmacol.*, **193**(2):209-215, 1991 (7 pp.);
5) Copy of "Management of Cancer Pain"; Clinical Guideline Number 9; AHCPR Publication No. 94-0592, March 1994 (202 pp.);
6) Petition for Extension of Time under 37 C.F.R. 1.17(a)(1) (1 pg.);
7) Request for refund under 37 C.F.R. § 1.26 and 35 U.S.C. § 42(d) (2 pp.);
8) Copy of Written Assertion of Small Entity Status Under 37 CFR § 1.27(a)(2) (1 pg.) as filed on February 5, 2002 and copies of corresponding transmittal (1 pg.) and return postcard;
9) Copy of deposit account statement dated March 29, 2002 (1 pg.); and
10) This Return Postcard.

Attorney: BHJ/NML Attorney Docket No. 2004117-0002 (NEMC 197)

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